

SYSTEM AND METHOD FOR MEASURING GERMANIUM  
CONCENTRATION FOR MANUFACTURING CONTROL OF BiCMOS FILMS

ABSTRACT OF THE DISCLOSURE

A system and method is disclosed for measuring a germanium concentration in a semiconductor wafer for manufacturing control of BiCMOS films. Germanium is deposited over a silicon substrate layer to form a silicon germanium film. Then a rapid thermal oxidation (RTO) procedure is performed to create a layer of thermal oxide over the silicon germanium film. The thickness of the layer of thermal oxide is measured in real time using an interferometer, an ellipsometer, or a spectroscopic ellipsometer. The measured thickness of the layer of thermal oxide is correlated to a germanium concentration of the silicon germanium film using an approximately linear correlation. The correlation enables a value of the germanium concentration in the silicon germanium film to be provided in real time.